ETM770 Users Manual 201404RV01.docx

ETM770-1 2G GSM/GPRS Signal Strength Meter

ETM770-2 3G/2G HSDPA/UMTS/GSM/GPRS Signal Strength Meter

ETM770-3 3G/2G HSPA/UMTS/GSM/GPRS Signal Strength Meter

ETM770 Signal Strength Meter

User Manual

Features:

- LCD Display with backlight
- Scan for signal strength
- Identify network operators
- SMA antenna connector (FME adapter included)
- Internal rechargeable battery pack
- Mini USB connector for programming and recharging
- Send TCP/IP data packages to a server to confirm connectivity

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Explanatory List of Network Abbreviations

Abbreviation	Full Name	Explanation
CHANN	Channel	Shows the ARFCN (Absolute Frequency Channel Number) of the Radio Band Frequency
PSC	Primary Synchronization Code	Describes start and stop time for the time slot that the device has been allocated
PLMN	Public Land Mobile Network	A network that is established and operated by an administration or by a recognized operating agency (ROA) for the specific purpose of providing land mobile telecommunications services to the public
MCC	Mobile Country Code	The first part of the PLMN code
MNC	Mobile Network Code	The second part of the PLMN code
LAC	Local Area Code	Identifies a Location Area
CELL	Cell ID	Cell identification number
APN	Access Point Name	Refer to Network Operator
LIP	Local IP	IP Address allocated by Network Operator
RSCP	Received Signal Code Power	Received Signal Code Power in dBm
SQ	Signal Quality	Quality value for base station selection in dB
SRxL		RX level value for base station selection in dB

Introduction

Nomenclature

ETM770-1 incorporates the Cinterion TC63i engine and is intended for use worldwide.

The ETM770-2/770-3 variants incorporate the Cinterion EU3-P/PH8-P engine, both models are intended for use in Europe, Asia, Australia and New Zealand.

Overview.

The ETM770-(x) models are signal strength meters designed for measuring the signal strength of 2G and 3G cellular operators at a particular location.

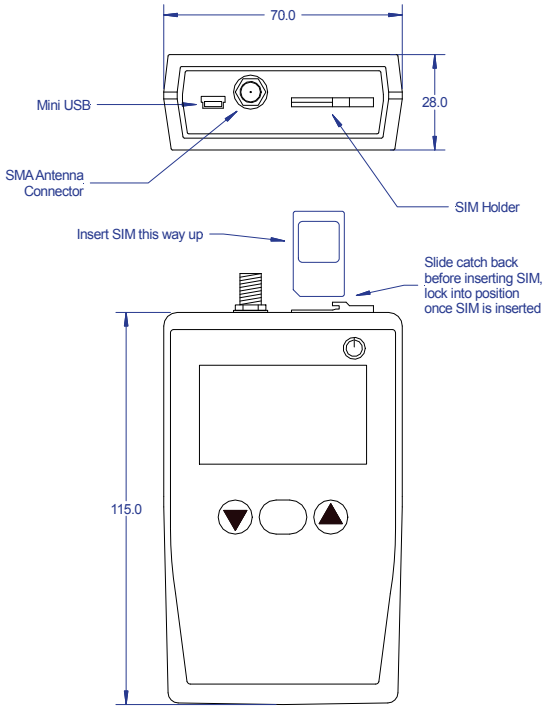
Terminal Nomenclature/History		
Model	**Comment**	**Module Installed**
ETM770-1	First Release	TC63i
ETM770-2	First Release	EU3-P
ETM770-3	First Release	PH8-P

Applications

The product is typically used to:

- Check signal availability for a potential installation
- Determine the best operator for a particular location
- Assess antenna positioning and suitability for a particular installation

Interfaces



Min USB

The Mini USB located on the top left of the unit is used both for programming the unit using a terminal program as well as for charging the unit.

SMA Antenna Connector

An SMA Jack antenna connector is located top centre of the unit. Any suitable antenna can be connected directly or via the use of an adaptor if required. FME adaptor included with unit.

SIM Holder

The units SIM holder is located top right of the unit. Please take care to ensure the unit is off when the SIM is removed or inserted, also ensure that the SIM is inserted correctly.

Buttons

Current Model

ON/OFF
Scroll Up
OK (enter)
Scroll Down

Older Units

Scroll Up
Enter
Scroll Down

Specifications

Feature	ETM770-1	ETM770-2	ETM770-3
3G UMTS/HSDPA Frequency Bands	N/A	850/900/2100 MHz	800/850, 900, 1900, 2100 MHz
2G GSM/GPRS Frequency Bands	850/900/1800/1900 MHz	900/1800 MHz	850/900/1800/1900 MHz
Screen	LCD Backlit	LCD Backlit	LCD Backlit
Battery	1020 mAhr 3.7V Rechargeable LIP	1020 mAhr 3.7V Rechargeable LIP	1020 mAhr 3.7V Rechargeable LIP
Battery Life	2 days operation in typical use	2 days operation in typical use	2 days operation in typical use
SIM Voltage	1.8V & 3V	1.8V & 3V	1.8V & 3V
Supply Voltage	5V via Mini USB	5V via Mini USB	5V via Mini USB
Power Consumption	600mA (recharging)	600mA (recharging)	600mA (recharging)
Weight	130g	130g	130g
Operating Temperature Range	-20°C to 40°C	-20°C to 40°C	-20°C to 40°C

Charging Temperature Limitation

In the battery charge condition of the ETM770 (when the mini – USB connector is used), the maximum operating ambient temperature is limited to 40˚C.

Caution

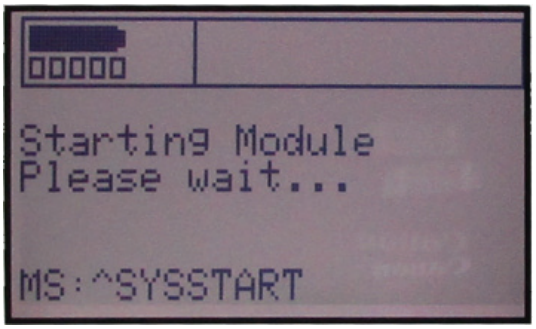
Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries appropriately.

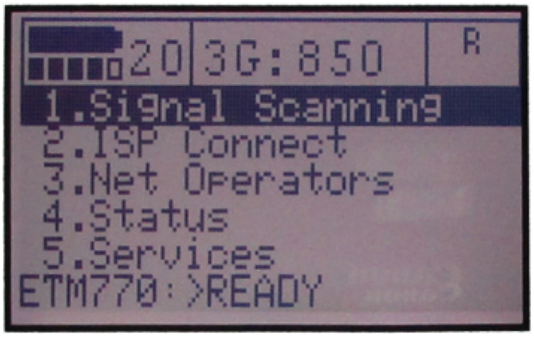
Starting the Unit

After ensuring the unit is off, insert a suitable SIM card and connect your antenna of choice. We recommend that the SIM PIN (if applicable) is deactivated before inserting in the unit.

If the unit has sufficient charge then depressing the Enter button will start the unit.



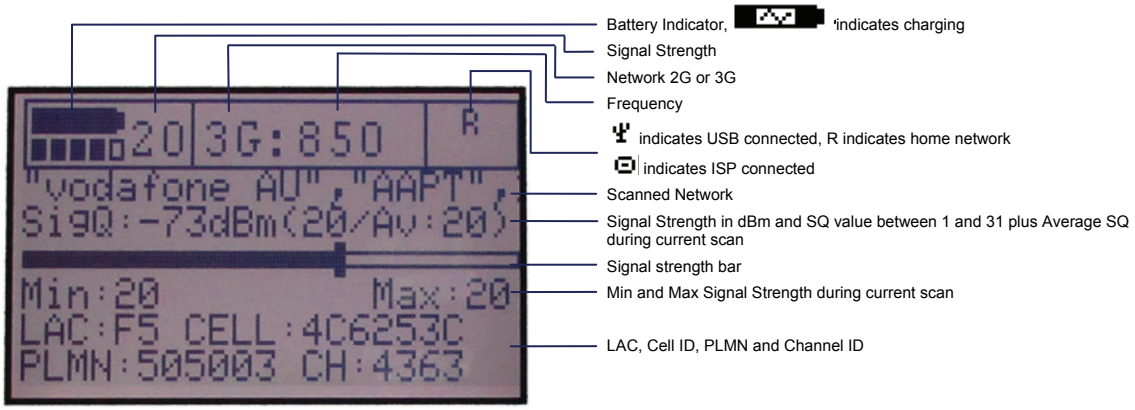
After the unit has successfully started the following screen should appear.



Main Menu – 1. Scan Signal

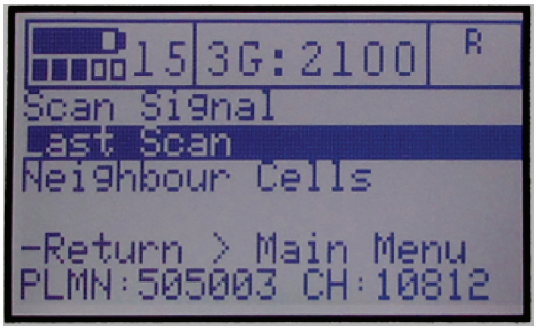
Scanning for Signal Strength

Use the UP and DOWN buttons to select 1. Scan Signal and then press ENTER.


Battery Indicator, indicates charging
Signal Strength
Network 2G or 3G
Frequency
indicates USB connected, R indicates home network
indicates ISP connected
Scanned Network
Signal Strength in dBm and SQ value between 1 and 31 plus Average SQ during current scan
Signal strength bar
Min and Max Signal Strength during current scan
LAC, Cell ID, PLMN and Channel ID
20 3G:850 R
"vodafone AU","AAPT",
SigQ:-73dBm(20/Av:20)
Min:20 Max:20
LAC:F5 CELL:4C6253C
PLMN:505003 CH:4363

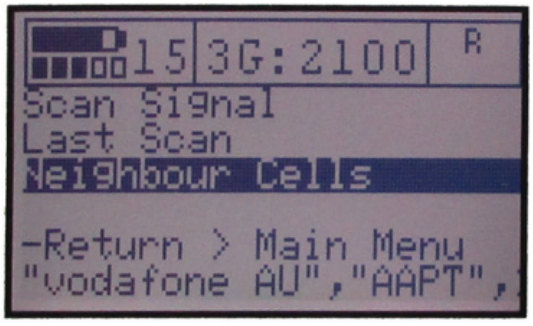
The above Scan Screen Indicates the Network, Frequency and Signal Strength Minimum, Maximum and Average during the period which the scan has been active, to start a new scan press any button and you will return to the main menu then select 1. Scan Signal again. To scan another network see Main Menu 3. Network Operators.

Last Scan



This option will show results of the last scan that was performed.

Neighbour Cells



This option will indicate how many cells are available.

Main Menu - 2. ISP Connect

This function allows for checking an IP connection using the selected network and SIM. To use this feature you must first set up the details of the server to be connected. The appropriate commands can be sent from a terminal program or via SMS. If user name are required then these can only be set via appropriate Configuration Tool contact ETM for more details.

Set APN (Access Point Name)

The following commands should be used to set the APN for connection to an ISP over Internet.

ET-IAPNx=+cgdcont=1,"ip",”APN” <CR>

Example: ET-IAPN1= +cgdcont=1,"ip","telstra.internet"<CR>
ET-IAPN2= +cgdcont=1,"ip","telstra.internet"<CR>

Both APN1 and APN2 must be set.

Set IP Address

The following commands should be used to set the IP-Address for connection to a Server.

ET-IP1=” Remote Server IP-Address” : “Remote Port” <CR>

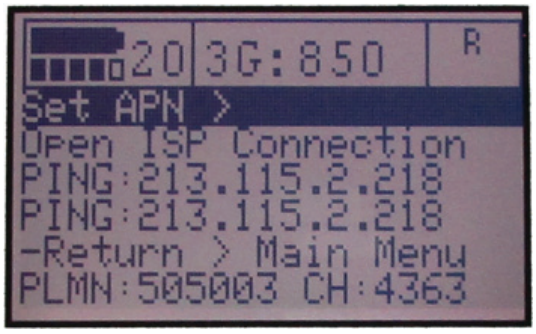
ET-IP2=” Remote Server IP-Address” : “Remote Port” <CR>

Example: ET-IP1=144.132.166.189:2049<CR>
ET-IP2=144.132.166.189:2049<CR>

Both IP1 and IP2 must be set.

Checking IP Connectivity

Use the UP and DOWN buttons to select 2. ISP Connect and press ENTER.



Open ISP confirms that the SIM and ISP login details are correct and that a successful logon occurs. Possible errors may come from incorrect authentication details, incorrectly configured SIM or no signal.

Ping confirms that once logged on to the ISP a remote server can be reached.

Once ISP testing is finished use the UP and DOWN buttons to scroll to Return->Main Menu and press ENTER.

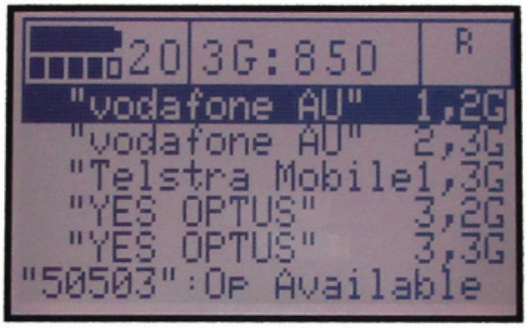
Main Menu - 3. Network Operators

Signal strength and cell information for available networks can be scanned from a SIM of any valid network operator. Note that registration on the network and ISP connectivity testing (see above) is only applicable for the network which provided the SIM.

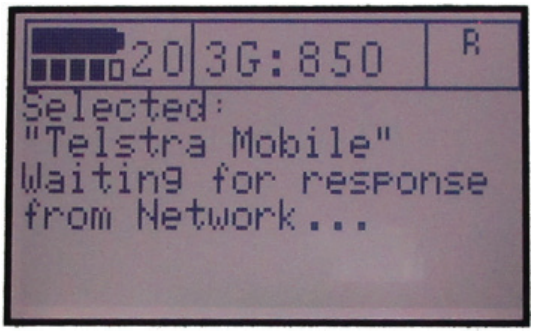
Scanning a Different Network

To scan the signal from a different network, at the Main Menu use the UP and DOWN buttons to select 3. Net Operators.

Then once the screen below is shown use the UP and DOWN buttons to select the desired Network to be scanned.



Once the desired network is selected by pressing ENTER, the unit will wait for a response from the network and then return to the main menu.



Once back at the main menu 1. Scan Signal can be selected and the signal strength on the new network scanned as required.

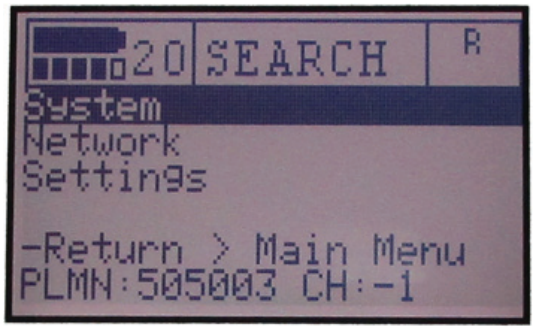
For Support Contact +61-2-9956-7377
Or support@etmpacific.com.au

Main Menu – 4. Status

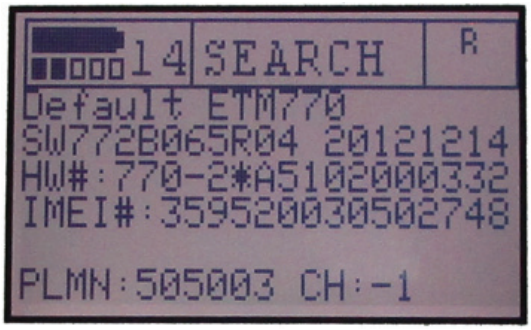
The Status section provides additional information on the current network connection as well as details of the unit's battery status and firmware version.

Press the UP and DOWN buttons to select 4. Status and press ENTER to access the unit status details.

System Details



Unit details including; firmware version, hardware version, IMEI, supply and battery voltage.

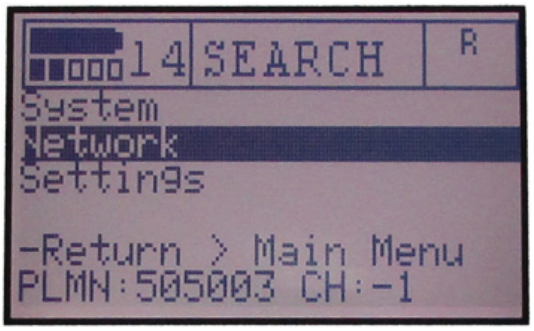


Scroll down until Return appears and press Enter to return to previous menu.

Network

Select Network.

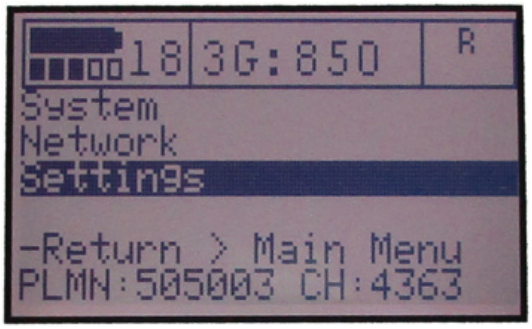
Information such as cell details, relating to the network to which the unit is set will be displayed.



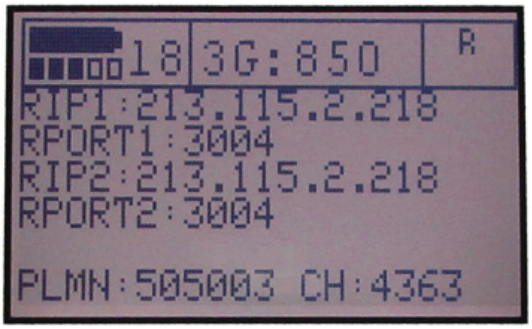
Scroll down until Return appears and press Enter to return to previous menu.

Settings

Select Settings.



Details of the IP address and Port to which the unit has been set (see Main Menu 2. ISP Connect) will be displayed.



Scroll down until Return appears and press Enter to return to previous menu.

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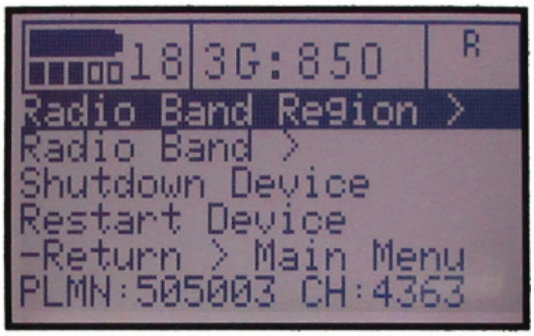
Or support@etmpacific.com.au

Main Menu – 5. Services

The Services menu section allows you to change Radio Band Region and Radio Band as well as Shutdown and Restart the device.

Radio Band Region (Only Applicable to ETM770-1)

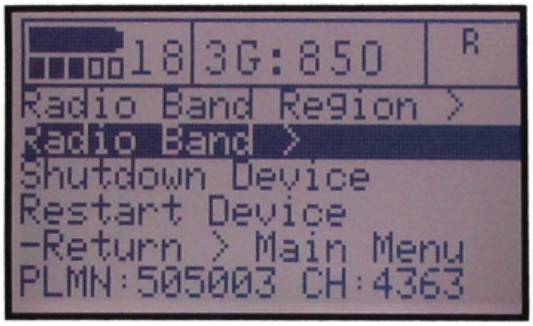
Radio Band Region sets the Radio Band Groups applicable to the location you are in, for example the applicable GSM/GPRS region for Australia is 900/1800 MHz.



NOTE – This menu item is not applicable for either the ETM770-2 or ETM770-3.

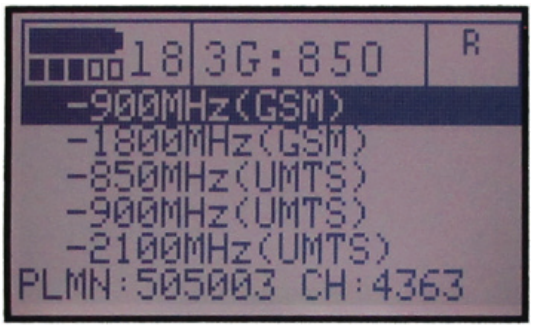
Radio Band (Restricting Scan to 2G or 3G)

This section allows the selection of a specific radio band for scanning. First select Radio Band and press ENTER.



This feature allows you to lock the unit to a specific band and in effect allows you to scan 2G or 3G independently

The following screen will then appear.



Remember to reset to Try All Bands, if you want the unit to scan for all available services

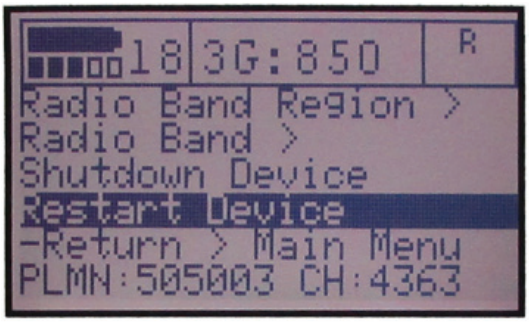
Use the UP and DOWN buttons to select applicable band and Press ENTER, the * should move to the selected radio band. Use the UP DOWN buttons to select Return> Main Menu and press enter.

Shutdown Device

Use this function to turn the unit off. Select Shutdown Device and press ENTER.

Restart Device

Use this function if you want to restart the device. Select Restart Device and press ENTER.

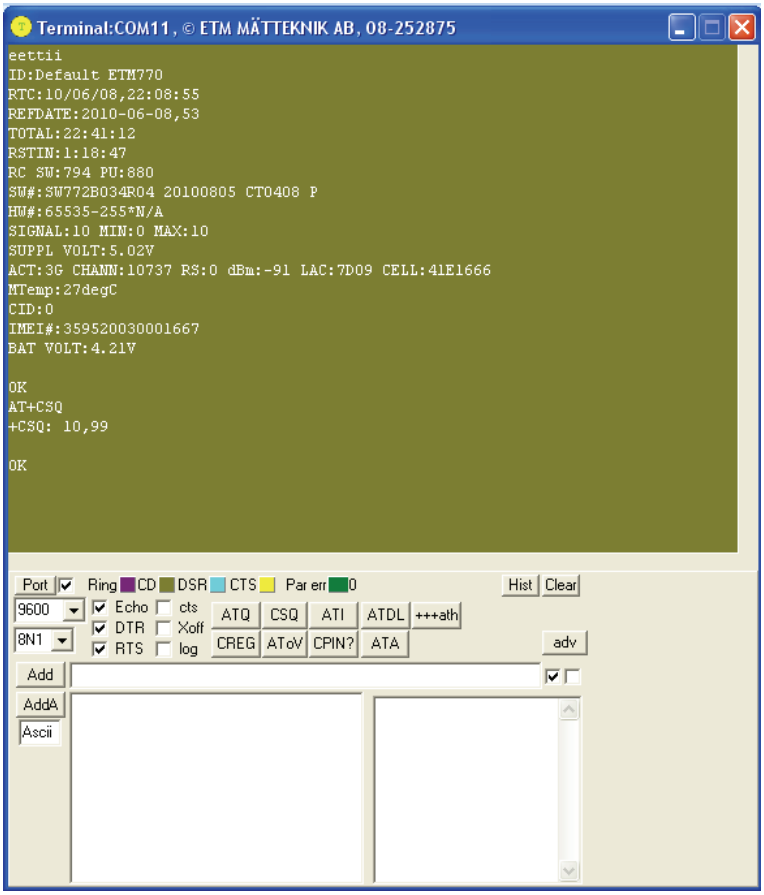


Note pressing the UP and DOWN arrows together will software reset the unit.

Using a Terminal Window to Configure the Unit

Any suitable terminal program, such as Windows HyperTerminal or ETM's own Term42 Program (available free of charge upon request) can be used to set certain parameters in the unit.

Baud Rate is set to 9600-N-1.



Screen Shot of ETI command response using ETM Term42 program.

Some Common Useful Commands to Use with Terminal Window

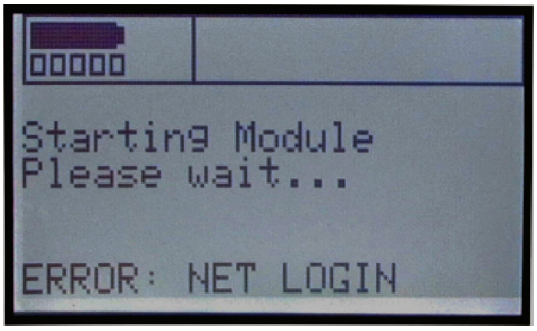
Command	Usage	Typical Response
ETI	To gain a quick summary of the units status as well as information on units firmware version	See above example
ETSEND=AT+COPS?	To determine network & service to which you are connected	+COPS: 1,0,"Telstra[32]Mobile
ET-I&IP	To check set server settings	et-I&ip AT+CGDCONT? AT+CGDCONT? +CGDCONT: 1,"IP","internet","0.0.0.0",0,0 OK IP STATUS: -IPCL:TCP APN:"internet" LIP:0.0.0.0 RIP1:213.115.2.218:3004 RIP2:213.115.2.218:3004 Last TCP: 213.115.2.218:3004 LP:2040 Last UDP: 213.115.2.218:2049 LP:2040 OK
ET-IAPN1= +cgdcont=1,"ip","telstra.internet" ET-IAPN2= +cgdcont=1,"ip","telstra.internet"	Sets APN (Access Point Name) for network operator and SIM used. Must set both APN1 and APN2 Note the unit must be reset for this command to take effect	OK
ET-IP1=144.132.166.189:2049 ET-IP2=144.132.166.189:2049	Sets the remote IP address Must set both IP2 and IP1 Note the unit must be reset for this command to take effect	OK
ET&SR	Software Reset	OK

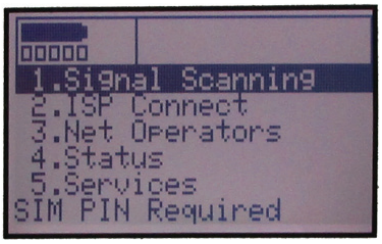
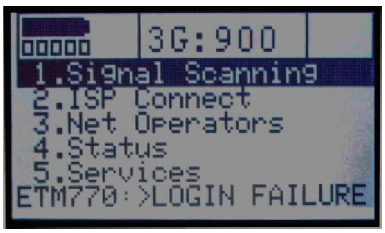
Note:

If you are using SIMs that are on a VPN then a username and password are required to be set, this can only be done via the appropriate ETM configuration tool, contact ETM for assistance.

Troubleshooting

Error Net Login on Startup



Possible Causes	Further Details	Corrective Action
SIM PIN Incorrect	The Scan Signal Section can be Accessed but will show 	Deactivate SIM Pin in handset (recommended) Use Configuration tool to enter SIM PIN contact ETM for assistance
No or very weak signal	If SIM PIN okay the following start-up screen would have been displayed 	Check antenna connection Try alternate antenna Check network coverage maps/information Check Radio/Band region or Radio Band Settings If ETM770-2 consider trying an alternate networks SIM

ISP Connect – Errors

Possible errors may arise from; incorrect authentication details, incorrectly configured SIM or no signal.

Possible Causes	Further Details	Corrective Action
Incorrect ISP Login Details	ISP Dial up Login Details are incorrect	Verify APN and IP details are correct Ensure SIM is provisioned correctly for data services
SIM Pin Error	See above	
No or Weak Signal	See above	

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